

REMARKS

The above-noted amendments to claim 3 are respectfully submitted in response to the official action dated March 20, 2008. Support for these amendments can be found, for example, in the drawings and in conjunction with paragraph [0013] of the specification. No new matter is included therein. In view of the fact that the claims as submitted clearly define patentable subject matter over the cited prior art, reconsideration and allowance of these claims is therefore respectfully solicited.

In response to the first official action in this case, applicants not only discussed the overall nature of the present invention, but also distinguished over each of the three references cited hereagainst. It is noted in that regard that none of the three references includes a single word describing the inclusion in any refining element of a plurality of first bars and intermediate grooves in an inner portion of the refining element which has a greater width than the plurality of second bars and intermediate grooves in the outer portion of the refining element. To the contrary, in the case of each of these references, the Examiner apparently appreciates this fact, and instead relies exclusively upon his review of the nature of the drawings in those cases in order to attempt to derive these important elements of the present invention therefrom. The Examiner also contends that he does not understand many of applicants' arguments concerning these rejections. Applicants wish to express a similar confusion with respect to the rejections since they are based upon alterations in color or darkness and do not, at least in applicants' view, appear to include a disclosure of these important elements of the presently claimed invention.

As for the invention itself, the combination of elements herein is specifically intended to provide a refining

element which has improved durability and reduced wear as compared to those of the prior art, including those of the cited references. By employing the combination of features set forth in the present claims, the three major portions of the disk itself (namely, the inner region, the outer region, and the transition region) will wear out at substantially the same rate. The wider bars in the inner region can withstand the higher wear encountered in this region due to coarser grinding and the much larger variation in the size of the particles faced thereon. The varying distance of the transition region from this inner edge of the refining element, particularly when viewed in terms of two refining disks facing each other both including this feature, will spread the heavy wear which is often involved in this region over a much larger area. Finally, the thinner bars in the outer region can complete the grinding to a desired level without jeopardizing the durability of the refining disk in that region.

Claim 3 has been rejected as being unpatentable over either Virving '003 or Gingras '071 under 35 U.S.C. § 102(b). Both patents are said to show refiner plates with transition portions of varying width from the inner edge of the plate. This rejection is respectfully traversed in view of the above amendments and arguments and for the reasons set forth hereinafter.

As applicants have previously pointed out, Virving '003 shows that the raised bars in each of the inner, intermediate and outer refining zones extend outwardly at different angles, which decrease as one moves in the outward direction. This is discussed in the disclosure of Virving '003. What is not mentioned anywhere in that patent is the width of any of these bars as they extend outwardly. Indeed, as has also been pointed out, a number of the bars in Virving '003 extend continuously from the inner edge, through the transition region,

and outwardly to the outer edge of the refining segment, thus strongly indicating that they have a consistent and equal width therealong. The Examiner, however, takes the position that this reference clearly shows bars in section B which are "thicker" than those in section C, with the Examiner noting "the darker color of the bars in section B." Applicants, however, can draw no such inference from any alleged darker color. Thus, while the bars in the inner region appear to be separated by greater distances, which might affect their appearance in the drawing, there is no "teaching" in this reference of this important limitation of one of the combined elements of the present invention. Contrast can be drawn to Figure 1 in the present application, for example, and the discussion of the real differences in the width of these bars, as well as the significant impact of same, in this application. This is simply not shown in the Virving '003 patent.

Turning next to the Gingras '071 patent, once again applicants have previously pointed out that this reference is specifically directed to the generation of steam between the rotating plates thereof, and in particular the backflow of this steam towards the inlet zone. This is said to create significant problems both in terms of the operation of the disk in general and in terms of the return of lignocellulosic material to the inlet. In a rotary plate shown in Figure 2 of Gingras '071 reference is made to the specifically designed curved breaker bars 36 and 36' which curve in a direction opposite the direction of rotation of that rotor plate, allegedly to maximize the feeding ability therethrough and block the backflowing steam and fibrous material discussed above. Applicants would certainly agree that these breaker bars do appear to be of greater width than the bars in the outer region of this device. However, there is no discussion of any change in width with any of the raised bars in the entire specification

of Gingras '071. In any event, reference is made to the above-noted amendment to claim 1 where it is now required that the plurality of first bars disposed on the inner portion of the refining surface extend substantially from the inner edge of the refining element to the transition region. This is not the case in Gingras '071. Secondly, as has already been pointed out, Gingras '071 does not include a transition region which has a varying distance from the inner edge of the refining element across the refining surface thereof. Indeed, the Examiner has not even mentioned this failure of Gingras '071 in response to applicants' arguments. Reconsideration of the applicability of these references is therefore respectfully solicited.

Claims 3-5 have been rejected as being unpatentable over Phillips under 35 U.S.C. § 102(b). The Examiner contends that Phillips shows a refiner plate having transition portions of varying width from the inner edge of the plate and notes that the bars are considered to be sides 17 with an associated recess in each bar. This rejection is respectfully traversed in view of the above amendments and arguments and for the reasons set forth hereinafter.

It is initially noted that it is clear beyond question that the Phillips patent does not teach a refining element in which there are first bars in the inner portion which have a greater width than second bars in an outer portion thereof. No matter whether one discusses the bars as the individual bars 17 or the groups of same, they are the same in both the inner and outer portions of Phillips. Indeed, the Examiner does not contend otherwise. Phillips is apparently relied upon solely because it includes an eccentric rib 15 projecting from the face of each plate between the inner and outer surfaces thereof. It is thus clear that the product shown in Phillips cannot possibly provide the advantages of the present invention as discussed above. The combination of each of the elements set forth in

claims 3-5 enable one to improve the durability and reduce the wear of the disk, and particularly the raised bars thereon. In the Phillips patent, the aim of the grinding member shown in Figure 2 appears to be to improve the grinding efficiency; that is, by introducing more cutting edges, such as grooves 16, which are arranged at the middle parts of the radial ribs having flat surfaces on each side of grooves 16, forming sharp cutting edges 17 with the grooves. (Col.2 ll.73-81.) This, however, would in fact result in a compromise of the durability of the disk and the bars, particularly as compared to the presently claimed invention. Thus, the relatively thin bars in the inner region of the Phillips patent would tend to wear out rather quickly resulting in a need to exchange the entire disk long before the bars of the same width in the outer region wear out. Furthermore, whereas the eccentric rib 15 shown in Phillips does appear to have a varying distance from the inner edge of the refining segment, the purpose of this disk in Phillips is that it is arranged in connection with similar ribs 15 of opposed plates to pass each other so that the eccentric rib of one plate forces the grain against the eccentric rib of the other plate. (Col.2 ll.62-68.) Thus, the overall combination of the present claims is clearly distinct from and patentable over Phillips, and reconsideration and allowance of these claims is respectfully solicited.

It is therefore again respectfully submitted that all of the claims in this application do possess the requisite novelty, utility and unobviousness to warrant their immediate allowance, and such action is therefore respectfully solicited. If, however, for any reason the Examiner still does not believe that such action can be taken, it is respectfully requested that he telephone applicants' attorney at (908) 654-5000 in order to overcome any additional objections which he might have.

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Docket No.: SUNDS 3.3-151

Finally, if there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

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Respectfully submitted,

By 

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